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Beam-Beam Diagnostics from Closed Orbit Distortion,* M. Furman, Y.-H. Chin and J. Eden (LBL), J. Tennyson and V. Ziemann (SLAC), and W. Kozanecki (CEN-Saclay and SLAC) — We study the applicability of beam-beam deflection techniques as a tuning tool for the SLAC/LBL/LLNL B factory. Assuming that the closed orbits of the two beams are separated vertically at the IP by a local, deliberate orbit bump that remains nominally closed, we calculate the residual beam orbit distortions due to the beam-beam interaction. Difference orbit measurements, performed at points conveniently distant from the IP, provide distinct coordinate- or frequency-space signatures that can be used to maintain the beams in collision and perform detailed optical diagnostics at the IP.

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